

Wherein I claim:

- 1 1. An imaging system comprising a surface for receiving an image, and a
2 light modulator comprising a plurality of light valves in a two-dimensional array having
3 orthogonal rows and columns in a first Cartesian coordinate system having a first and a
4 second orthogonal axes, said columns arrayed along said first axis in the coordinate
5 system; said rows arrayed along the second axis and a number of said rows forming a
6 segment; and wherein said surface is transported relative to the modulator in a direction
7 along a transport axis; wherein the first axis and the transport axis form an angle other
8 than 90° , said angle α inversely proportional to the number of rows in the segment;
- 9 wherein the number of rows in the segment is n ; n is an integer greater than 1;
10 and the modulator comprises at least 2 segments; further wherein each light valve has
11 an X dimension along the first axis and a Y dimension along the second axis, and $X = Y$
12 and the angle $\alpha = \tan^{-1}(1/n)$.
- 1 2. The imaging system according to claim 1 wherein said angle is between
2 about 2° and 45° .
- 1 3. The imaging system according to claim 1 further comprising a radiant
2 energy source and at least one lens for directing said radiant energy onto said
3 modulator.
- 1 4. The imaging system according to claim 1 further comprising at least one
2 lens for directing said radiant energy onto said surface.
- 1 5. The imaging system according to claim 1 wherein said surface comprises
2 a printing plate.

1 6. The imaging system according to claim 1 wherein said surface comprises
2 an image detecting element.

1 7. The imaging system according to claim 6 wherein said image detecting
2 element is a photosensitive layer.

1 8. The imaging system according to claim 1 wherein said image detecting
2 element is a plurality of photosensitive elements.

1 9. The imaging system according to claim 1 wherein said imaging surface is
2 an image display surface.

1 10. The imaging system according to claim 1 further comprising a modulator
2 controller connected to said modulator for turning on and off any selected number of
3 light valves in said light valve array.

1 11. The imaging system according to claim 10 further comprising a
2 transporter for transporting said surface in a plane defined by said first coordinate
3 system in the transport direction.

1 12. The imaging system according to claim 11 further including means for
2 synchronizing said surface transporter and said modulator controller to repeatedly
3 expose a same selected area on said surface using light valves in different light valve
4 rows thereby to effect cumulative exposure of a desired surface area.

1 13. The imaging system of claim 1 wherein the surface for receiving an
2 image is wrapped around a cylindrical drum which rotates in the transport direction.

1 14. The imaging system of claim 1 wherein the surface for receiving an
2 image is positioned on a flatbed.

1 15. The imaging system of claim 1 further comprising a transport head that
2 transports the light valve array, and wherein the imaging surface is a cylindrical drum
3 and the transport head rotates around the cylindrical drum in the transport direction.

1 16. The imaging system according to claim 1 further comprising:

2 (a) a source of radiation and an optical projection system for directing at least a
3 portion of said radiation onto said modulator and therefrom onto said surface; and

4 (b) a scanning means for scanning said radiation on said surface.

1 17. The imaging system of claim 1 wherein the light modulator is selected
2 from the group consisting of an optical switch, a MEMS device, an electro-holographic
3 device, an acousto-optic device, a liquid crystal display device, a Bragg grating device,
4 a bubblejet device, a thermo-optic interferrametric device and a thermo capillary
5 device.

1 18. The imaging system of claim 1 wherein the surface for receiving an
2 image is selected from the group consisting of a photosensitive surface, a display
3 screen, a circuit board, and a radiation detection device.

1 19. A method of imaging using the imaging system of claim 1 wherein the
2 light valves provide radiation below the exposure threshold of the image receiving
3 surface.

1 20. An method of imaging comprising:

2 (A) positioning a surface for receiving an image at a focal point of a light
3 modulator;

4 said light modulator comprising a plurality of light valves in a two-dimensional
5 array having orthogonal rows and columns in a first Cartesian coordinate system having
6 a first and a second orthogonal axes, said columns arrayed along said first axis in the
7 coordinate system; said rows arrayed along the second axis;

8 (B) forming a segment comprising a number of said rows;

9 (C) activating said light valves;

10 (D) transporting said surface relative to the modulator in a direction along a
11 transport axis, wherein the first axis and the transport axis form an angle α other than
12 90° , said angle α inversely proportional to the number of rows in the segment;

13 wherein the number of rows in the segment is n ; n is an integer greater than 1;
14 and the modulator comprises at least 2 segments;

15 further wherein each light valve has an X dimension along the first axis and a Y
16 dimension along the second axis, and $X=Y$ and the angle $\alpha = \tan^{-1}(1/n)$.

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